

REMARKS

The Examiner rejected claims 32 and 33 as being anticipated by U.S. Patent No. 6,514,352 to Gotoh et al (“the Gotoh patent”);

claims 32-33 were also rejected as being anticipated by U.S. Patent No. 6,773,873 to Seijo et al (“the Seijo patent”);

claims 26-30 were rejected as being obvious over the Gotoh patent, in view of U.S. Patent No. 6,508,887 to Park et al (“the Park patent”) and U.S. Patent No. 6,911,836 to Hada et al (“the Hada patent”).

Although claim 31 is included in the grouping of rejected claims on page 1 of the Office Action (Office Action Summary, Disposition of Claims), claim 31 is not included in any of the Examiner’s claim rejections. Applicants are left to conclude that claim 31 was erroneously included in the Disposition of Claims as being rejected and, in fact, is only objected to as depending from a rejected claim. As claim 30, from which claim 31 depends, is now believed to be in allowable form, there should be no further objection to the allowability of claim 31.

1. Claims 26-27 and 32-33 and the Gotoh patent

The Examiner rejected claims 32 and 33 as being anticipated by the Gotoh patent. The Gotoh patent is to a method of cleaning using “a cleaning agent comprising an oxidizing agent, a chelating agent and a fluorine component....” col. 3, lines 5-7.

The chelating agent is an essential element of the formulations in the Gotoh patent and is included in every embodiment, example, and claim. The Gotoh patent expressly states “[t]he chelating agent used in the present invention includes....” and thereafter provides an extensive list of chelating agents to use in the formulation. col. 3, line 58 – col. 4, line 42. Further, the Gotoh patent states that “[i]f the chelating agent has a content of less than 0.01% by weight, the effect for preventing metal impurities from readhering is scarcely observed.” col. 4, lines 46-48. The Gotoh patent thereby teaches away from not using a chelating agent. Claims 32 and 33, however, expressly claim a method of using a composition free of chelators.

Anticipation under 35 U.S.C. 102(e) requires that “each and every element as set forth in the claim is found, either expressly or inherently described, in a single prior art reference.”

Verdegaal Bros., Inc. v. Union Oil Co., 814 F.2d 628, 631, 2 U.S.P.Q.2d 1051, 1053 (Fed. Cir. 1987). Gotoh does not disclose every element of claims 32 and 33 because Gotoh does not disclose a cleaning composition that is free of chelators. Accordingly, claims 32 and 33 cannot be anticipated by the Gotoh patent and the Examiner's rejection is therefore obviated.

The Examiner has rejected claims 26-27 as being obvious over the Gotoh patent, in view of the Park patent and the Hada patent. As with claims 31 and 32, claims 26 and 27 also expressly include the element that "said cleaner and residue remover is free of chelators." See, Claims 26 and 27. To render a claim obvious, the combination of references must disclose every element of a claim, however, none of the patents asserted (Gotoh, Park, or Hada) disclose cleaner and remover compositions that are free of chelators. Indeed, as stated above, the Gotoh patent teaches away from such compositions.

Even if Park or Hada disclosed compositions that are free of chelators, it would be improper to combine the Gotoh patent – which teaches away from chelator-free cleaner and remover compositions – with references that teach such chelator-free compositions. The MPEP itself states: "[i]t is improper to combine references where the references teach away from their combination. *In re Grasselli*, 713 F.2d 731, 743, 218 USPQ 769, 779 (Fed. Cir. 1983)." MPEP 2145. There is no suggestion to combine, however, if a reference teaches away from its combination with another source. *Fine*, 837 F.2d at 1075, 5 USPQ2d at 1599. "A reference may be said to teach away when a person of ordinary skill, upon reading the reference, would be discouraged from following the path set out in the reference, or would be led in a direction divergent from the path that was taken by the applicant . . . [or] if it suggests that the line of development flowing from the reference's disclosure is unlikely to be productive of the result sought by the applicant." *In re Gurley*, 27 F.3d 551, 553, 31 USPQ2d 1130, 1131 (Fed. Cir. 1994). That is certainly the case here, a person of ordinary skill, upon reading the Gotoh patent and by his/her common sense, would be discouraged from using a chelator-free cleaner and remover. See, *KSR Int'l Co. v. Teleflex, Inc.*, 550 U.S. ____, 2007 WL 123787, at 12 (2007). Accordingly, the Examiner's obvious rejection of claims 26 and 27 are obviated.

2. Claims 32-33 and the Seijo patent

Claims 32-33 were rejected as being anticipated by the Seijo patent. However, claims 32 and 33 claim the use of “one or more alkanolamines in an amount sufficient to have a pH of between 8.0 and 8.2.” *See*, Claims 32 and 33. The Seijo patent does not disclose the use of one or more alkanolamines and therefore cannot anticipate. To the extent that the Examiner seeks to interpret “polar organic solvent” to include alkanolamines, the Seijo patent teaches away from such use. The Seijo patent, however, does not disclose the use of alkanolamines and, in fact, teaches away from using alkanolamines as the polar organic solvent by stating “prior art cleaning formulations have used alkanolamines to remove resist residues. However, if water is present during use [as with claims 32 and 33] the alkanolamine disassociates and creates an alkaline solution that accelerates the corrosion of metals and dielectric.” The Seijo patent, col. 2, lines 48-52.

Accordingly, where the Seijo patent does not expressly disclose the use of alkanolamines and, on the contrary, specifically teaches not to use alkanolamines, as claimed in claim 32 and 33 of the present application and the Examiner’s amendment is thereby obviated.

3. Claims 28-30

The Examiner has rejected claims 28-30 as being obvious over the Gotoh patent, in view of the Park patent and the Hada patent.

Claim 28-30, claim, *inter alia*, the use of the specific inorganic acids “sulfamic acid, phosphonic acid, or mixture thereof...” The Gotoh patent fails to disclose such inorganic acids and only identifies various organic acid chelating agents. Neither the Park patent, nor the Hada patent fill in the missing element. It is axiomatic that to render a claim obvious, all the claim limitations must be taught or suggested by the combined prior art. In *re* Royka, 490 F.2d 981, 180 USPQ 580 (CCPA 1974). "All words in a claim must be considered in judging the patentability of that claim against the prior art." In *re* Wilson, 424 F.2d 1382, 1385, 165 USPQ 494, 496 (CCPA 1970). Because Gotoh, Park and Hada fail to disclose sulfamic acid or phosphonic acid, the combination cannot render claims 28 and 30 obvious.

Where an independent claim is nonobvious, then any claim depending therefrom is nonobvious. In re Fine, 837 F.2d 1071, 5 USPQ2d 1596 (Fed. Cir. 1988). Accordingly, claim 29 is also nonobvious.

Not only does the combination of Gotoh, Park and Hada fail to disclose the use of sulfamic acid and phosphonic acid, or mixture thereof, but the present Application specifically states that “[i]t was found through extensive testing that formulations having sulfamic acid, or alternatively phosphonic acid and a derivative, both showed less tendency to erode copper and low-k materials, and also exhibited less metal redeposition, than did the formulations using other acids.” Application, paragraph 119. Accordingly, sulfamic acid and phosphonic acid provide unexpectedly improved results compared to other acids.

As yet a further nonobviousness distinction, the Examiner noted that the Gotoh patent failed to disclose 0.2 to 5% by weight of an alkanolamine in the cleaning solution and relied upon the Park and Hada references to argue it would be obvious “to incorporate the cited alkanolamine as disclosed by Park et al and Hada et al into the process of Gotoh et al....” However, the Examiner concedes that one skilled in the art would consider the Seijo patent when considering the presently claimed invention and the Seijo patent teaches away from using an alkanolamine with an aqueous cleaner and remover because “the alkanolamine disassociates and creates an alkaline solution that accelerates the corrosion of metals and dielectrics.” Seijo, col. 2, 49-52. Therefore, it is clearly not obvious to simply insert alkanolamine into the cleaner disclosed by the Gotoh patent and certainly the specific amount of alkanolamine is less obvious.

Accordingly, because the combination of Gotoh, Park and Hada fail to disclose an element, because sulfamic acid and phosphonic acid provide unexpectedly improved results compared to other acids, and because it would not be obvious to simply add alkanolamine to Gotoh according to the teaching of the Seijo patent cited by the Examiner, claims 28-30 are not obvious and are believe to be in allowable form.

4. The Amendments

No new matter has been added by the amendments to the claims. Claim 26 has been amended to incorporate composition elements of claim 1 expressly and to add that the composition is free of chelating agents. The latter amendment is supported in various parts of

the specification, such as paragraph [0022]. Similarly, claim 28 has been amended to incorporate composition elements of claim 1 and a chelating agent, which is supported in various parts of the specification, such as paragraph [0021] and paragraph [0038]. Claim 30 has also been amended to incorporate composition elements of claim 1 and claim 32 has been amended to incorporate composition elements of claim 25, as well as the limitation that the composition is free of chelating agents, which is supported in the specification as noted above.

An extension of time is filed herewith; no other fees are believed due in this matter. However, should any fees be deemed necessary please charge Morgan, Lewis & Bockius Deposit Account No. 50-0310.

Respectfully submitted,



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